



A COMPARATIVE ANALYSIS OF AGILITY AND SPORTS AGGRESSION AMONG UNIVERSITY-LEVEL KABADDI AND KHO-KHO PLAYERS OF CHHATTISGARH

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Abstract

Objective: This study was conducted to find the comparative levels of agility and sports aggression in between university-level Kabaddi player and Kho-Kho players from Chhattisgarh.

Methodology: The study included 100 male university players, with 50 participants from Kabaddi and 50 from Kho-Kho, they were randomly selected from various universities in Chhattisgarh, aged between 20 to 27 years. Agility was assessed using the 4x10 yards shuttle run test, while measurement of sports' aggression using Sports Aggression Questionnaire derived by Km. Roma Pal and Dr. Tasneem Naqvi. All data were statistically analyzed- descriptive statistics (mean, standard deviation) and independent samples 't' test at 0.05 significance level.

Results: Findings show no significant difference in agility between Kabaddi player and Kho-Kho players ($t = 1.022$, $p = 0.309$), indicating comparable agility performance. However, a significant difference was observed in sports aggression ($t = -4.997$, $p = 0.000$), with Kabaddi players exhibiting significantly more sports aggression ($M = 88.63$, $SD = 15.33$) compared to Kho-Kho players ($M = 75.84$, $SD = 9.28$).

Conclusion: Study concludes that university-level Kabaddi player and Kho-Kho players of Chhattisgarh demonstrate comparable agility, while Kabaddi players exhibit significantly more sports aggression. These findings reflect distinct physical and psychological sports demands for each. Study provides valuable insights for coaches and trainers in developing sport-specific training programs.

Keywords: Agility, Sports Aggression, Kabaddi, Kho-Kho, University-Level Players, Chhattisgarh

Introduction

Kabaddi and Kho-Kho both are two of India's most prominent traditional sports, can say deeply embedded in the nation's cultural fabric and sporting heritage. Both games have transcended their

origins as rural pastimes to become organized, competitive sports played at school, university, national, and international levels. The inclusion of Kabaddi in the Asian Games and the growing international recognition of Kho-Kho reflect the global appeal and competitive potential of these traditional Indian sports (Rathore & Singh, 2014; Deb & Banerjee, 2023). At the university level, these sports serve as a crucial platform for talent identification and development, with players representing their institutions in inter-university competitions across the country (Singh, 2018; Mutnal & Kale, 2019).

Contemporary Kabaddi and Kho-Kho demand a combination of technical proficiency, traditional game skills, and well-developed physical fitness, physiological efficiency, and psychological resilience. Success in these sports is determined by a complex interplay of physical attributes and psychological characteristics (Rathore & Singh, 2014; Ahmad et al., 2020). Among physical fitness components, agility stands out as a critical determinant of performance in both games. Agility known as the ability or capacity for changing the direction rapidly and accurately while maintaining control of the body, is essential for executing sport-specific movements effectively (Singh, 2018; Yallappa, 2020). In Kabaddi, agility enables raiders to evade defenders and execute quick tackles, while in Kho-Kho, agility facilitates rapid directional changes during chasing and dodging (Shakapnor & Shetty, 2024; S & Md, 2026).

So, Similarly, psychological factors play an equally important role in determining athletic success. Among these, aggression is a significant psychological variable that influences competitive behavior, motivation, and performance during sports participation (Cs et al., 2022; Ahmad et al., 2020). Sports aggression refers to behavior expressed with the intention of causing physical or psychological harm to another individual or intimidate opponents, which can be physical, verbal, or relational in nature (Havappgol & Malipatil, 2024). In the context of contact sports like Kabaddi and Kho-Kho, appropriate levels of aggression are necessary for assertive and competitive behavior, while excessive aggression can lead to penalties, injuries, and negative outcomes (As & N, 2023).

Chhattisgarh, with its growing participation in university-level sports, provides an ideal condition to examine those characteristics. Universities in Chhattisgarh have been actively participating in inter-university competitions, producing talented athletes who compete at the national level (Rathore & Singh, 2014; Singh, 2018). Nevertheless, available research on this subject is still limited research examining the athletic profiles of university-level players in the state, particularly in the context of comparative studies across different sports (Mutnal & Kale, 2019; Yallappa, 2020).

In previous studies has shown that various findings in respect of physical fitness between Kabaddi players and Kho-Kho players. Previous studies have find that Kabaddi players exhibit superior agility compared to Kho-Kho players, reflecting the explosive, intermittent nature of Kabaddi which requires repeated sprinting and rapid directional changes (Singh, 2018; Yallappa, 2020). Kandar and Rawte find that agility between both groups were comparable (BuddhadevKandar & BhojramRawte, 2022; Deb & Banerjee, 2023). Kabaddi players show significantly more aggression compared to Kho-Kho players, likely due to the physical contact, tackling, and body

confrontation inherent in Kabaddi previous study found that (Cs et al., 2022; Ahmad et al., 2020; As & N, 2023).

Consequently, few studies have comprehensively investigated the physical and psychological characteristics of university-level players in Chhattisgarh. This study addresses that research gap by conducting a comparative analysis of agility and sports aggression among university-level Kabaddi players and Kho-Kho players of Chhattisgarh. This study is important because it can generate empirical evidence on the distinct athletic characteristics of players involved in these two traditional sports and provide useful guidance for coaches and trainers when developing sport-specific training programmes.

Objectives of Study

Primary objective is to find the comparative levels of agility and aggression for sports between university-level Kabaddi players and Kho-Kho players of Chhattisgarh. The specific objectives are worded as follows:

1. To compare the agility levels between Kabaddi players and Kho-Kho players.
2. To assess the aggression levels of sports between Kabaddi players and Kho-Kho players.

Hypotheses of the Study

Depending on different review of this study and objectives of this study, following hypotheses have been formulated:

1. This study hypothesized that agility would differ significantly between Kabaddi player and Kho-Kho players.
2. It is hypothesized that there was a difference in sports aggression with significance between Kabaddi players and Kho-Kho players.

Methodology

Subjects Selection

For this study, 100 university-level male players (from their 50 Kabaddi and 50 Kho-Kho players) were selected randomly for subjects from various universities in Chhattisgarh. Selected subjects age group were in between 20 to 27 years. All subjects had participated in university-level competitions in their respective sports (Rathore & Singh, 2014; Singh, 2018).

Selection of Variables

After reviewing different scientific literature, journals and magazines with keeping feasibility criteria in mind, following variables were taken for this present study:

1. Agility (Physical Fitness Variable)
2. Sports Aggression (Psychological Variable)

Criterion Measures

Agility

Measurement of agility were performed by using the shuttle run test of 4x10 yards (Singh, 2018). Test requires subject to run back and forth between two parallel lines which placed 10 yards apart, picking up and placing blocks manner. Time for taken to complete the shuttle run was recorded in seconds (Yallappa, 2020).

Sports Aggression

Measurement of sports aggression with using pre-defined Sports Aggression Questionnaire by Km. Roma Pal and Dr. Tasneem Naqvi (Cs et al., 2022). Questionnaire consists of 30 items, with responses coded as ‘Very Much, Much, Ordinary, Less, Very Less and Not at All’. Scoring ranges from ‘5, 4, 3, 2, 1, 0’ for each correct item, whereas 150 was maximum score and 0 was minimum score. Score of 100-130 taken as average aggression, scores above 130-150 are mention as high aggression and scores less than 100 are considered as low aggression (Ahmad et al., 2020; As & N, 2023).

SL No.	Variable	Category	Tool/Instrument	Criterion Measure
1	Agility	Physical Fitness Variable	4x10 Yards Shuttle Run Test	Time taken to complete the shuttle run recorded in seconds (sec)
2	Sports Aggression	Psychological Variable	Sports Aggression Questionnaire (Km. Roma Pal & Dr. Tasneem Naqvi)	Score obtained from questionnaire responses (Maximum score: 150; Minimum score: 0)

Statistical Techniques Used

Collected data were analyzed statistically. In descriptive statistics (mean and standard deviation), for independent samples ‘t’ test used to find the significance differences between the two groups. All level of significance was fixed at p level of <0.05 (Rathore & Singh, 2014; Sudhakar & Krishnamoorthi, 2025).

Results and Discussion

1. Comparison of Agility

Mean, standard deviation (SD) and ‘t’ values of agility in sports between Kabaddi players and Kho-Kho players are presented in Table 1.

Table 1: Comparison of Agility between University-Level Kho-Kho and Kabaddi Players

Group	N	Mean	SD	df	t-value	p-value	Remark
Kabaddi	50	10.056	0.366	87.359	1.022	0.309	Not Significant
Kho-Kho	50	9.988	0.264	-	-	-	

*Significant at 0.05 level

Interpretation

Table 1 represent the mean shuttle run time remained with SD at p level of 0.309 which mean no significant difference of agility was found between university-level Kho-Kho players and Kabaddi players. Kho-Kho players recorded a mean time of 10.056 seconds, while Kabaddi players recorded a mean time of 9.988 seconds. The difference in arithmetic mean between both groups remained minimal (0.068 seconds), suggesting comparable agility performance. The standard deviation values remained close, with Kho-Kho players showing SD = 0.3655 and Kabaddi players showing SD = 0.2640, indicating similar variability among participants of both groups (Singh, 2018; Yallappa, 2020).

The Levene's test for equality of variances revealed a significant F-value ($F = 5.228$, $p = 0.024$), indicating that the assumption of equal variances was violated. Consequently, the t-test results were interpreted with unequal variances assumed ($df = 87.359$). The Independent Samples t-test revealed a t-value of 1.022. The probability value ($p = 0.309$) remained greater than 0.05, which means no statistically significant difference between mean agility scores. Mean difference of 0.0665 with a 95% confidence interval ranging from -0.0628 to 0.1959 confirms that the observed variation occurred due to sampling fluctuation rather than actual difference in agility performance (Rathore & Singh, 2014; Sudhakar & Krishnamoorthi, 2025).

The result suggests that regular participation in either Kho-Kho or Kabaddi develops similar levels of agility because both sports require rapid directional changes, body control, balance, coordination, reaction ability, and movement efficiency throughout competitive play (Deb & Banerjee, 2023; Shakapnor & Shetty, 2024). Similar training characteristics associated with both indigenous games may contribute to comparable agility performance (Buddhadev Kandar & BhojramRawte, 2022; S & Md, 2026).

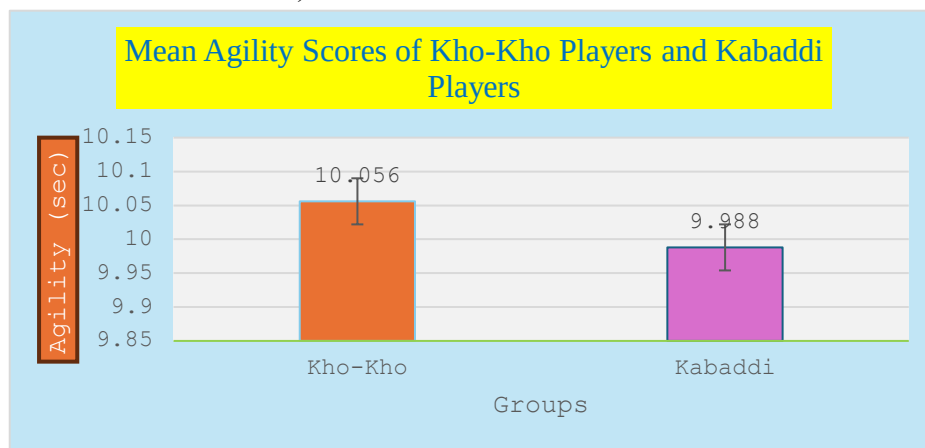


Figure 1: Comparison of Mean Score of Agility between University-Level Kho-Kho and Kabaddi Players

Discussion of Hypothesis

Research Hypothesis 1: Significant difference exists in agility between university-level Kho-Kho and Kabaddi players. Statistical analysis found no significant difference for supporting the research hypothesis. The probability value ($p = 0.309$) remained greater than 0.05, indicating no significant difference in agility between university-level Kho-Kho and Kabaddi players. Null hypothesis was accepted by rejecting research hypothesis. Comparable agility performance observed among both groups may be explained by similar movement demands of Kho-Kho and Kabaddi. Both games require continuous multidirectional movement, sudden changes of direction, rapid body rotation, quick footwork, balance, coordination, and immediate response to opponents. Training programmes followed by players of both sports generally include shuttle running, ladder drills, cone drills, reaction exercises, and multidirectional movement practice, resulting in comparable agility development (Singh, 2018; Yallappa, 2020). Kho-Kho players frequently perform chasing, pole turning, dodging, and sudden directional movements during pursuit of

opponents. Kabaddi players similarly execute rapid raids, defensive blocks, lateral movement, and immediate recovery requiring high levels of agility. Regular exposure to these sport-specific movements promotes similar neuromuscular adaptations responsible for agility performance (Shakapnor & Shetty, 2024; S & Md, 2026). The present finding indicates that agility represents a common performance characteristic shared by both indigenous sports. Similarity in agility performance demonstrates the effectiveness of training methods adopted by coaches of both games in developing rapid movement efficiency and body control among university-level players (BuddhadevKandar & BhojramRawte, 2022; Deb & Banerjee, 2023).

Comparison of Sports Aggression

Mean, standard deviation (SD) and 't' values for sports aggression between Kabaddi players and Kho-Kho players are presented in Table 2.

Table 2: Comparison of Sports Aggression between University-Level Kho-Kho and Kabaddi Players

Group	N	Mean	SD	t-value	df	p-value	Remarks
Kho-Kho	50	75.84	9.28	-4.997	96	0.000	Significant
Kabaddi	50	88.63	15.33	-	-	-	

*Significant at 0.05 level

Interpretation

Results presented in Table 2 indicate the mean aggression score remained higher among university-level Kabaddi players compared to Kho-Kho players. Kabaddi players recorded a mean aggression score of 88.63, while Kho-Kho players recorded a mean score of 75.84. Difference in arithmetic mean suggests Kabaddi players exhibit greater competitive aggression compared with Kho-Kho players. Standard deviation denote the greater level of variability among Kabaddi players (SD = 15.33) compared to Kho-Kho players (SD = 9.28), suggesting more diverse aggression levels among Kabaddi players (Cs et al., 2022; Ahmad et al., 2020). The Levene's test for equality of variances revealed a significant F-value (F = 15.360, p = 0.000), indicating that the assumption of equal variances was violated. Consequently, the t-test results were interpreted accordingly. The Independent Samples t-test revealed a t-value of -4.997 with 96 degrees of freedom. The probability value (p = 0.000) remained lower than 0.05, which mean a significant difference in aggression of sports between university-level Kho-Kho players and Kabaddi players. Negative t-value means that Kabaddi players were scored significantly higher than Kho-Kho players. Mean difference of -12.796 of 95% confidence interval ranging from -17.881 to -7.711 confirms that observed difference is statistically significant and no due random sampling variation (Rathore & Singh, 2014; Sudhakar & Krishnamoorthi, 2025). Result suggest that Kabaddi players demonstrate significantly more aggression levels compared to Kho-Kho players. Result support that physical contact, tackling, blocking, resisting opponents, and continuous body confrontation during Kabaddi were cause for development of higher competitive aggression. Comparatively lower aggression observed among Kho-Kho players which may associated with movement-oriented nature of the game, emphasizing chasing, dodging, coordination, anticipation, and tactical execution rather than direct physical confrontation (Havappgol & Malipatil, 2024; As & N, 2023).

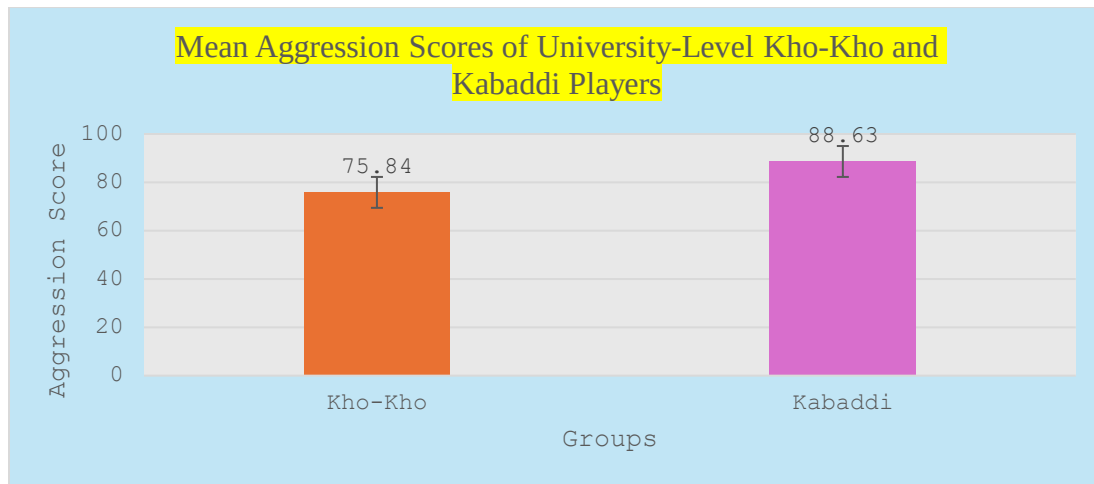


Figure 2: Comparison of Mean Score of Aggression between University-Level Kho-Kho and Kabaddi Players

Discussion of Hypothesis

Research Hypothesis 2: Significant difference exists in sports aggression between university-level Kho-Kho and Kabaddi players.

Statistical analysis supported the research hypothesis. The probability value ($p = 0.000$) remained below 0.05, which indicate a significant difference in sports aggression between university-level Kho-Kho and Kabaddi players. Null hypothesis was rejected but research hypothesis was accepted. Higher aggression observed among Kabaddi players due to the physical and psychological demands of the game. Kabaddi involves direct body contact, tackling, resisting opponents, escaping from defenders, and maintaining physical dominance throughout competition. Continuous exposure to such competitive situations encourages assertiveness, fighting spirit, and aggressive behaviour necessary for successful performance (Cs et al., 2022; Ahmad et al., 2020). The physical nature of the sport requires players to engage in regular physical confrontation, which may contribute for development of higher aggression levels (As & N, 2023). Kho-Kho emphasizes agility, speed, anticipation, coordination, and tactical movement. Success depends primarily upon efficient chasing, rapid directional changes, accurate timing, and teamwork rather than physical confrontation. Consequently, players may develop greater emotional control and comparatively lower aggression during competition. The movement-oriented nature of Kho-Kho encourages cooperative play and tactical execution, which may not foster the same level of aggressive behaviour as observed in Kabaddi (Havappgol & Malipatil, 2024; Cs et al., 2022). Aggression should not be interpreted as an undesirable psychological characteristic when maintained within acceptable limits. Controlled aggression contributes positively toward confidence, motivation, competitive spirit, determination, and successful execution of technical skills. Excessive aggression, however, may increase emotional instability, reduce concentration, and lead to unnecessary fouls or penalties during competition. The mean aggression score of Kabaddi players (88.63) falls within a moderate range, suggesting that the aggression displayed is likely instrumental (goal-directed) rather than hostile (Ahmad et al., 2020; As & N, 2023). This study

also supports the previous literature those reporting higher aggression among athletes participating in body-contact sports compared with athletes participating in non-contact or limited-contact sports (Cs et al., 2022; Ahmad et al., 2020). Research conducted at Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh, also reported significant differences in sports aggression between Kabaddi and Kho-Kho players, with higher aggression observed among Kabaddi players. (Kandar & Sarkar, 2022). Studies on university-level players from Haryana have similarly demonstrated that Kabaddi players exhibit higher aggression compared to Kho-Kho players (Yadav & Singh, 2019).

Discussion

Study compared agility and sports aggression between university-level Kabaddi players and Kho-Kho players of Chhattisgarh. Results indicate that participation in these two indigenous sports produces distinct psychological adaptations while sharing similar physical characteristics for certain variables. Regarding agility, the findings revealed comparable performance between Kabaddi players and Kho-Kho players. This similarity suggests that regular participation in either sport develops similar levels of agility through continuous multidirectional movement, rapid directional changes, and sport-specific training programmes (Singh, 2018; Yallappa, 2020). Although movement patterns differ during actual competition, both games demand frequent changes of body position within limited playing areas, resulting in comparable agility characteristics (Deb & Banerjee, 2023; Shakapnor & Shetty, 2024). Regarding sports aggression, the findings revealed significantly higher aggression among Kabaddi players compared to Kho-Kho players. This difference reflects the physical and psychological demands of Kabaddi, which involves direct body contact, tackling, resisting opponents, and maintaining physical dominance throughout competition (Cs et al., 2022; Ahmad et al., 2020). Kho-Kho, in contrast, emphasizes tactical movement, coordination, and anticipation rather than physical confrontation, resulting in comparatively lower aggression (Havappgol & Malipatil, 2024; As & N, 2023). Findings were important for implications of coaches, trainers, and sports administrators. Sport-specific training programmes should address the distinct requirements of each sport. For Kho-Kho players, agility-focused training should be maintained to sustain performance, while psychological training for aggression management should be emphasized for Kabaddi players to ensure aggression is channeled constructively (Yadav & Singh, 2019; Kandar & Sarkar, 2022).

Conclusions

Based on present study, the following conclusions are drawn:

1. Agility: University-level Kabaddi players and Kho-Kho players from Chhattisgarh demonstrate comparable agility performance. No significant difference between the two groups, suggesting that regular participation in either sport develops similar levels of agility through comparable movement demands and training characteristics.
2. Sports Aggression: University-level Kabaddi players from Chhattisgarh exhibit significantly higher levels of sports aggression compared to Kho-Kho players. The physical nature of Kabaddi, involving direct body contact, tackling, and physical confrontation, likely contributes to the development of greater competitive aggression among Kabaddi players.

3. Sport-Specific Profiles: The findings confirm that participation in Kabaddi and Kho-Kho produces distinct psychological adaptations while sharing similar physical characteristics for agility. Kabaddi players demonstrate significantly higher aggression levels, but both groups exhibit comparable agility.

4. Practical Implications: Coaches and trainers should design sport-specific training programs that address the distinct requirements of each sport. For Kho-Kho players, maintaining agility-focused training is recommended, while for Kabaddi players, psychological training for aggression management and channeling should be incorporated.

Implications

This study have significant implications for various stakeholders:

Coaches and Trainers: The results provide empirical evidence to design sport-specific training programs. Coaches should maintain agility development for both sports while incorporating psychological training for aggression management among Kabaddi players.

Sports Administrators: The findings inform talent identification and selection criteria for university-level Kabaddi and Kho-Kho teams, highlighting importance of both physical and psychological characteristics.

For Sports Scientists: The study contributes to the existing body of knowledge on comparative athletic profiles of indigenous sport players and provides a reference for future research.

Suggestions

1. Longitudinal Studies: Future research should adopt longitudinal designs to examine changes in agility and aggression over time and in response to specific training interventions.

2. Additional Variables: Researchers should examine additional physical and psychological variables including speed, strength, flexibility, anxiety, and self-confidence.

3. Gender Comparison: Comparative studies should be conducted between male and female players to examine gender differences.

4. Regional Comparisons: Cross-state comparisons should be conducted to identify regional variations in athletic profiles.

5. Intervention Studies: Experimental studies should evaluate the effectiveness of specific training interventions on agility and aggression among Kabaddi player and Kho-Kho players.

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